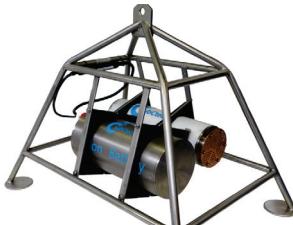


Li-Ion Standard PowerPack™

High capacity, reliability, safety Li-Ion Technology

14.4V to 50.4V	666Wh to 3.5kWh	300m to 6000m	7A to 50A
<ul style="list-style-type: none"> → Highest capacity → Highest safety → Highest reliability → Maintenance free → Charge under water → Data output → Customizing → Offshore Oil+Gas approved 			
<ul style="list-style-type: none"> ■ Subsea Instrumentation ■ Long-time deployments 		<ul style="list-style-type: none"> ■ ROV/AUV Vehicle Power ■ Condition Monitoring 	

 <p>North-Sea ADCP Monitoring (© BSH, Germany)</p>	 <p>EM exploration (© Mundal/PGS, Norway)</p>	 <p>Gas monitoring system (©TOHO, Japan)</p>
 <p>Low-torque rotary switch (© CAMERON, USA-Germany)</p>	 <p>Transport box (car, ship) (© SubCtech)</p>	 <p>Conçu et développé au bassin d'essais de Boulogne sur Mer (Ifremer) Video-Lander (© IFREMER, France)</p>



Specification	"Long-John" 90 mm battery			
	14.4V	25.2V	46.8V	50.4V
Capacity	47Ah	26Ah	16Ah	16Ah
Energy	674Wh	655Wh	730Wh	768Wh
2000m	Ø 90 mm x 512mm length. 8.5kg in air, 5.1kg in sea water		Ø 90 mm x 560mm length. 8.9kg in air, 5.2kg in sea water	
4000m	Ø 90 mm x 512mm length. 9.3kg in air, 5.8kg in sea water		Ø 90 mm x 560mm length. 9.6kg in air, 6kg in sea water	
6000m	Ø 90 mm x 512mm length. 8.5kg in air, 5.1kg in sea water		Ø 90 mm x 560mm length. 8.9kg in air, 5.2kg in sea water	

Notes: all housings are made of titanium grade 2, except the 6000m version is made of grade 5
Optional BMS (data output) can require additional lengths.

Specification	"Big Jim" 168/180 mm battery							
	14.4V		25.2V		46.8V		50.4V	
Type	Standard	XL	Standard	XL	Standard	XL	Standard	XL
Capacity	140Ah	280Ah	70Ah	140Ah	34Ah	70Ah	34Ah	70Ah
Energy	2020Wh	4040Wh	1769Wh	3538Wh	1582Wh	3285Wh	1704Wh	3538Wh
300m	Std.: Ø 168 mm x 372mm length. XL: Ø 168 mm x 638mm length.		Weight: 17kg in air, 9kg in sea water Weight: 29kg in air, 5kg in sea water					
2000m	Std.: Ø 180 mm x 390mm length. XL: Ø 180 mm x 630mm length.		Weight: 24kg in air, 14kg in sea water Weight: 38kg in air, 22kg in sea water					
4000m	Std.: Ø 180 mm x 390mm length. XL: Ø 180 mm x 630mm length.		Weight: 25kg in air, 15kg in sea water Weight: 41kg in air, 25kg in sea water					
6000m	Std.: Ø 180 mm x 390mm length. XL: Ø 180 mm x 630mm length.		Weight: 25kg in air, 15kg in sea water Weight: 41kg in air, 25kg in sea water					

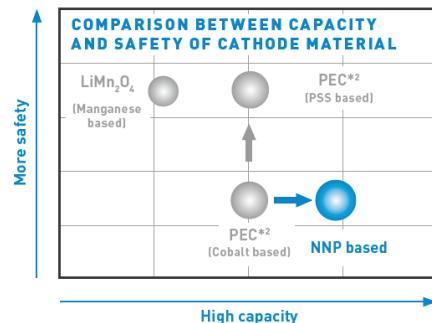
Notes: all housings are made of titanium grade 2, except the 6000m version is made of grade 5
The 14.4V XL type is 20mm longer. Optional BMS (data output) can require additional lengths.



Our new "A" type batteries incorporates our well known AUV (Autonomous Underwater Vehicle) battery cell for highest capacity. After usage only for high-sophisticated AUV battery systems up to 41kWh and 240V we provide this special Li-Ion "MNP" technology now for our standard product portfolio.

The special features from the MNP technology are:

- Internal Temperature Coefficient Device (PTC) to protect over-heating on cell level
- Current Interrupt Device (CID) to protect over current on cell level
- Heat Resistance Layer (HRL) to protect over-heating and internal short-circuit



Specification	NEW "Long-John" "A" type high capacity battery			
	14.4V	25.2V	46.8V	50.4V
Capacity	60Ah	33Ah	20Ah	20Ah
Energy	868Wh	844Wh	941Wh	1013Wh

All other specifications as above.

Specification	NEW "Big-Jim" "A" type high capacity battery							
	14.4V		25.2V		46.8V		50.4V	
Type	Standard	XL	Standard	XL	Standard	XL	Standard	XL
Capacity	180Ah	362Ah	90Ah	181Ah	43Ah	90Ah	43Ah	90Ah
Energy	2605Wh	5210Wh	2279Wh	4559Wh	2038Wh	4233Wh	2195Wh	4559Wh

Notes all other specifications as above.

Specification	Certifications & approvals (all types)	
Certifications	The cells are fully certified for UN/DOT 38.3 and listed at UL. UN transport testing 38.3 is available on request for the batteries.	
Production	Production following IPC-A-600 and IPS-A-610 class 3 on request.	
Environmental	Product testing for temperature, shock and vibration following MIL-STD 810G on request.	
EMC	Our products comply with the IEC EMC directives, single tests on request.	
Offshore	Our production and quality management is approved to ISO-13628	
QMS	Our company is approved by ISO-9001-2008	
Air cargo	Our standard products are approved by the "Bundesluftfahrtamt" no. LBA B32F/439.50/15	
Vendor	We are proved battery manufacturer of the German UBA (Umweltbundesamt) no. 21002655	

SubCtech GmbH • Wellseedamm 3 • D-24145 Kiel • Germany
 T +49 431-22039-880 • F +49 431-22039-881 • www.subctech.com • info@subCtech.com

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Specification	Voltage ranges (all types)			
Battery type	14.4V	25.2V	46.8V	50.4V
Charging volt.	16.8V	29.4V	54.6V	58.8V
Minimal volt.	12V	21V	39V	42V
Cut-off	10V	17.5V	32.5V	35V

Notes: the charge voltage is the max. voltage measured at the battery output. The min. voltage guarantees full performance and lifetime. The battery capacity is measured down to this level. More discharge will not provide more capacity. Cut-off protects electronically against under discharge. In case of cut-off our SmartCharger™ will revive the battery.

Specification	Current options and connectors (all types)				
Current	7A (standard)	20A	30A	40A	50A (60A)
Connector power only	BH-4F "Standard"	BH-4F	BH-10F	BH-12F	BH-16F
Connector with power+data	BH-8F	BH-8F	BH-10F	BH-12F	BH-16F
	1, 4: V- 2, 3: V+ (SeaBattery™ compatible)	1-2: V- 2-3: V+ 4-7: Data 8: On/Off	1-3: V- 4-6: V+ 7-9: Data 10: On/Off	1-4: V- 5-8: V+ 9-11: Data 12: On/Off	1-6: V- 7-12: V+ 13-15: Data 16: On/Off

Notes: all connectors are SubConn®. The standard output 7A/20A (BH-4F) is SeaBattery™ compatible. Other connectors on request.

For all current outputs larger than 7A the high-power option is required (special electronic components and wiring).

Specification	General (all types)
Temperature	-20 ... +60 °C (operating), >0 ... +40 °C (charging), -20 ... +50 °C (storage)
Self discharge	<15 % per year at +25°C, < 10% per year at 0°C
Charge cycles	>800 cycles for 80% remaining capacity
Protection	Over-charge, under voltage discharge, current limiting after 1s, over-temperature
Data interface (optional)	BMS (Battery Management System) with RS-232 (RS-485) data interface ASCII NMEA-0183 or binary MODBUS RTU data protocol. Optional remote on/off input pin
Remote On/Off (optional)	Remote on/off input pin. Connected to 0V (battery -) to switch the battery on. An open input or any voltage >1.2V up to Vbatt will switch off. The pin is internally connected to Vbatt with 1MOhm.
Charger	Our SmartCharger™ can be connected all time. Do not open the housing for charging.
Switches (optional)	Remote switches e.g. for ROV (ISO-13628 light torque tool) or simple linear magnetic switches e.g. for diver or ROV usage
DC Options (optional)	Customised DC/DC outputs e.g. 5V, 12V, 24V. High efficiency and low noise. LED control light, customized e.g. green/red highly visibility and low-power
Transportation	The battery must be transported as dangerous goods class 9. SubCtech is registered as a vendor of batteries. Transported by sea, air or road. We are pleased to advise you.
Storage	Storage at +5 to +20°C, approx. 50%-90% charged. Recharge after 3-6 months. We provide storage/transport boxes with low-power cooling devices and charging.



Never use other chargers, modify cables or operate outside the specifications, risk of fire or explosion.

